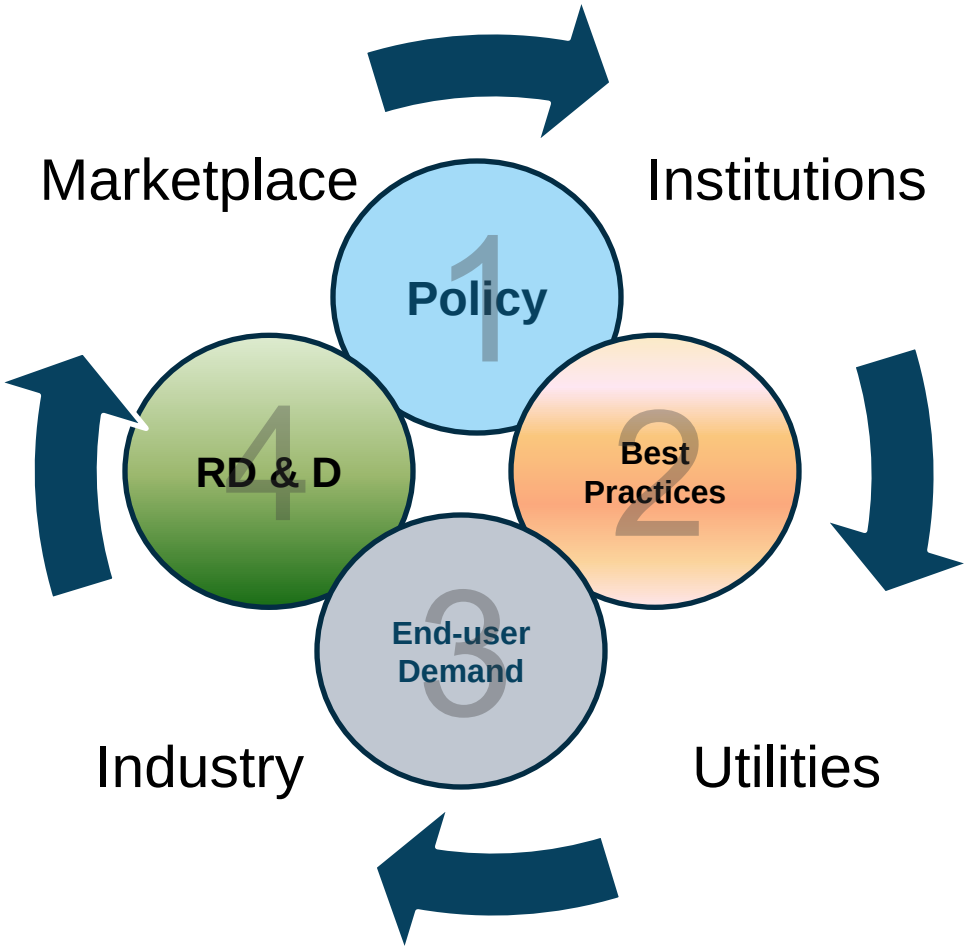
CA | Energy Efficiency Strategic Plan

LIGHTING ACTION PLAN
Q1 2014 Update
March 28, 2014

Agenda

- Recap
- Updates
  - Strategy 1 – Scale and align state codes and standards
  - Strategy 2 – Establish a baseline
  - Strategy 3 – Identify best practice lighting technologies
  - Strategy 4 – Educate and train lighting contractors
  - Strategy 5 – Increase participation of public entities
  - Strategy 6 – Coordinated marketing approach
  - Strategy 7 – Statewide lighting RD&D efforts
- Adjourn

Recap


Marketplace
Institutions
1
Policy
2
Best Practices
3
End-user Demand
4
RD & D
Industry
Utilities

3

Recap

- Goal → Strategy → Initiative → Key Actions
- Stakeholder driven
- Streamlined in 2012
- Implementing in 2013
  - Irwindale meeting in February 2013
  - Quarterly webinars
  - San Diego meeting on November 7, 2013
- www.cpuc.ca.gov/lap

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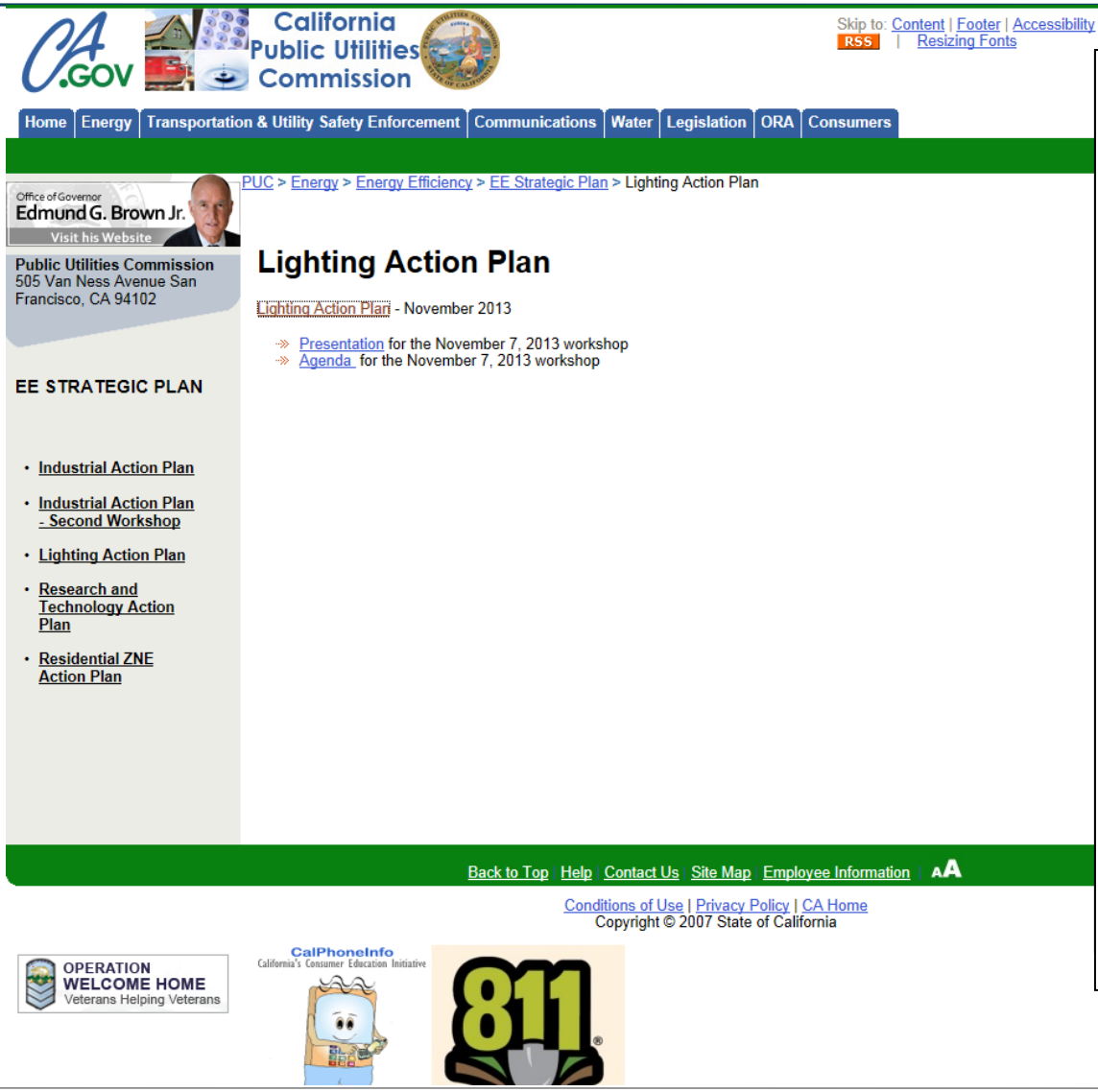
Recap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EE STRATEGIC PLAN
Industrial Action Plan
Industrial Action Plan - Second Workshop
Lighting Action Plan
Research and Technology Action Plan
Residential ZNE Action Plan
PUC > Energy > Energy Efficiency > EE Strategic Plan > Lighting Action Plan
Lighting Action Plan
Lighting Action Plan - November 2013
Presentation for the November 7, 2013 workshop
Agenda for the November 7, 2013 workshop
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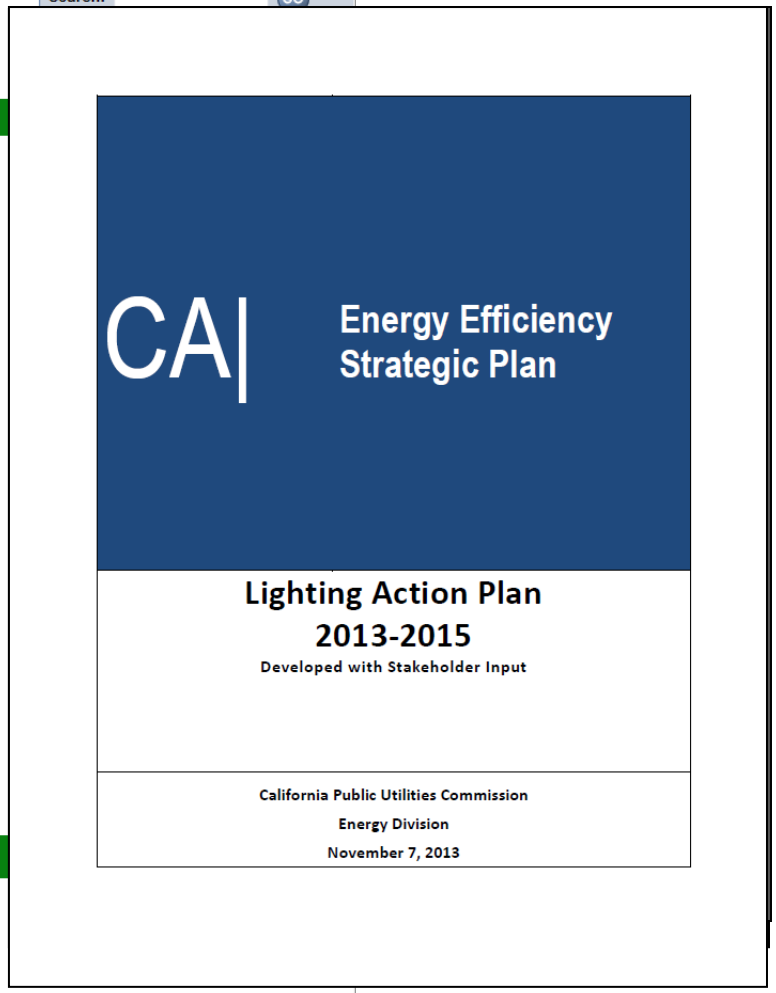
CA | Energy Efficiency Strategic Plan
Lighting Action Plan
2013-2015
Developed with Stakeholder Input
California Public Utilities Commission
Energy Division
November 7, 2013

Recap


PG&E


DNV·GL


EPRI
ELECTRIC POWER
RESEARCH INSTITUTE


TRC
Results you can rely on


ENERGY SOLUTIONS


STATE OF CALIFORNIA
ENERGY COMMISSION


eco
HATCHERY™


TCP


ICF
INTERNATIONAL


OSRAM
SYLVANIA
SYLVANIA


PHILIPS


CREE


SDGE
A Sempra Energy utility


Waypoint
BUILDING GROUP


CLTC
CALIFORNIA LIGHTING TECHNOLOGY CENTER


NAVIGANT


LEVITON


SOUTHERN CALIFORNIA
EDISON
An EDISON INTERNATIONAL Company

CA | Energy Efficiency Strategic Plan

LAP UPDATES
Goal 1
Strategy 1

Goal 1

CA Energy Efficiency Strategic Plan

- **Goal 1** – POLICY

  Develop and implement coordinated policies, procedures, and other market interventions that eliminate barriers, accelerate lighting market transformation in California and provide incentives for best practice lighting technologies and systems.

Goal 1

- Strategy 1: Scale and align state codes and standards to address the goals articulated in the Lighting Action Plan.
  - Champions:
    - Michael Mutmansky, TRC
    - Lisa Parker, SCE
    - Angi Xanders, DNV GL
    - Lela Manning, SDG&E

Goal 1

CA Energy Efficiency Strategic Plan

- Strategy 1: Scale and align state codes and standards to address the goals articulated in the Lighting Action Plan.

Initiative	Key Actions	Timeline
1-1: Provide input to CEC 2017 Title 24 code process to ensure that viable best practice lighting technologies are adopted into code	Conduct literature review of potentially viable lighting technologies (e.g., lighting controls) for adoption into code	COMPLETE
	Develop list of recommended changes to code or technologies to include in new code	COMPLETE
	Document code change recommendations	COMPLETE
	Provide input to code process based on above document	COMPLETE
1-2: Encourage cities and counties to ensure inclusion of best practice lighting technologies and systems beyond Title 24 requirements into local building codes ("reach codes")	Research and document examples of how some communities have included best practice lighting technologies and systems into local building codes ("reach codes")	COMPLETE
	Meet with representatives from 2-3 cities or counties to discuss possibility of improved lighting codes and share research results	Q1 2014
	Develop logic model diagram that shows how a technology moves into codes and standards	Q1 2014
	Conduct follow-up outreach to each targeted community to support code adoption	ONGOING
1-3: Advocate for changes to green building rating systems (e.g., CalGreen, LEED) to encourage incorporation of best-practice lighting technologies and systems into all green buildings	Understand the relevant rating system organization's internal processes for making changes	COMPLETE
	Conduct a literature review regarding typical lighting systems in existing green buildings certified by the relevant rating organization(s)	COMPLETE
	Prepare examples of possible improvements to these typical scenarios showing benefit-cost analyses	COMPLETE
	Meet with rating system representatives to discuss possible benefit from changes to incorporate best practice lighting technologies and systems into green buildings	Q1 2014
	Conduct ongoing follow-up with rating system representatives to keep this issue current with them	ONGOING

Goal 1

CA Energy Efficiency Strategic Plan

- Strategy 1: Scale and align state codes and standards to address the goals articulated in the Lighting Action Plan.

Initiative	Key Actions	Timeline	COMPLETE?
1-2: Encourage cities and counties to ensure inclusion of best practice lighting technologies and systems beyond Title 24 requirements into local building codes ("reach codes")	Meet with representatives from 2-3 cities or counties to discuss possibility of improved lighting codes and share research results	Q1 2014	NO
	Develop logic model diagram that shows how a technology moves into codes and standards	Q1 2014	NO
1-3: Advocate for changes to green building rating systems (e.g., CalGreen, LEED) to encourage incorporation of best-practice lighting technologies and systems into all green buildings	Meet with rating system representatives to discuss possible benefit from changes to incorporate best practice lighting technologies and systems into green buildings	Q1 2014	NO

Goal 1

CA Energy Efficiency Strategic Plan

- Strategy 1: Scale and align state codes and standards to address the goals articulated in the Lighting Action Plan.
  - Initiative 1-2: Encourage cities and counties to ensure inclusion of best practice lighting technologies and systems beyond Title 24 requirements into local building codes ("reach codes")
  - **Key Action: Meet with representatives from 2-3 cities or counties to discuss possibility of improved lighting codes and share research results**
  - Status: Not Completed
  - Brief Update: The coordination with representatives of municipalities will be undertaken through IOU outreach. This effort will be coordinated by a champion from SDG&E once appointed to the group.

Goal 1

CA Energy Efficiency Strategic Plan

- Strategy 1: Scale and align state codes and standards to address the goals articulated in the Lighting Action Plan.
  - Initiative 1-2: Encourage cities and counties to ensure inclusion of best practice lighting technologies and systems beyond Title 24 requirements into local building codes ("reach codes")
  - **Key Action: Develop logic model diagram that shows how a technology moves into codes and standards**
  - Status: Not Completed
  - Brief Update: Michael Mutmansky will develop a logic model for how to incorporate technology into code and present at the next in-person LAP meeting in June 2014.

Goal 1

CA Energy Efficiency Strategic Plan

- Strategy 1: Scale and align state codes and standards to address the goals articulated in the Lighting Action Plan.
  - Initiative 1-3: Advocate for changes to green building rating systems (e.g., CalGreen, LEED) to encourage incorporation of best-practice lighting technologies and systems into all green buildings
  - **Key Action: Meet with rating system representatives to discuss possible benefit from changes to incorporate best practice lighting technologies and systems into green buildings**
  - Status: Not Completed
  - Brief Update:
    - Recommendations for changes to LEED are submitted through the NCQLP contact page, then processed through the certification department. Because LEED v4 recently went into affect, it will be some time before the next review process is started.
    - Residential tool is still being developed.

CA | Energy Efficiency Strategic Plan

LAP UPDATES
Goal 1
Strategy 2

Goal 1

CA Energy Efficiency Strategic Plan

- **Goal 1** – POLICY

  Develop and implement coordinated policies, procedures, and other market interventions that eliminate barriers, accelerate lighting market transformation in California and provide incentives for best practice lighting technologies and systems.

Goal 1

CA Energy Efficiency Strategic Plan

- Strategy 2: Establish a baseline and method for quantifying how each initiative contributes to the reduction in electric lighting energy consumption.
  - Champions:
    - Jeorge Tagnipes, CPUC Energy Division
    - Amul Sathe, Navigant Consulting, Inc.

Goal 1

CA Energy Efficiency Strategic Plan

- Strategy 2: Establish a baseline and method for quantifying how each initiative contributes to the reduction in electric lighting energy consumption.

Initiative	Key Actions	Timeline
2-1: Create a tool to establish the baseline electric lighting energy consumption against which to track Lighting Action Plan progress	Engage an independent third party to leverage the CPUC's 2012 Goals & Potentials Study (and subsequent updates) and estimate baseline electric lighting energy consumption for 2010	COMPLETE
	Project energy consumption forward through 2020 – both including and excluding projected savings from IOU energy efficiency programs and codes & standards	COMPLETE
	Update results as model inputs become available (e.g., for street lights, LED lamps, and updated information regarding the impacts of codes & standards)	COMPLETE
	Share results and obtain feedback from a stakeholder group including representatives from the CPUC, other government agencies, utilities, and industry	COMPLETE
2-2: Update the baseline tool enable scenario analyses for different technologies and markets	Review ability to update existing baseline model with different scenarios (e.g., based on product adoption timelines and/or pricing) to help understand the market potential and the effects of each scenario on energy savings	Q1 2014
	Review and prioritize available information for development of scenarios	Q2 2014
	Build scenario analysis capabilities within the model	Q4 2014
	As available, continue to share results from model with utility program teams and other stakeholders; encourage utilities to use results for program planning purposes	Ongoing

Goal 1

CA Energy Efficiency Strategic Plan

- Strategy 2: Establish a baseline and method for quantifying how each initiative contributes to the reduction in electric lighting energy consumption.

Initiative	Key Actions	Timeline	Complete?
2-2: Update the baseline tool enable scenario analyses for different technologies and markets	Review ability to update existing baseline model with different scenarios (e.g., based on product adoption timelines and/or pricing) to help understand the market potential and the effects of each scenario on energy savings	Q1 2014	NO

Goal 1

- Strategy 2: Establish a baseline and method for quantifying how each initiative contributes to the reduction in electric lighting energy consumption.
  - Initiative 2-2: Update the baseline tool enable scenario analyses for different technologies and markets
  - **Key Action: Review ability to update existing baseline model with different scenarios (e.g., based on product adoption timelines and/or pricing) to help understand the market potential and the effects of each scenario on energy savings**
  - Status: Not Completed
  - Brief Update:
    - We started discussions at the November meeting in San Diego, but we would like to engage more stakeholders to gather input on the high level scenario updates we are proposing. We intend to present more fleshed out results at the June 2014 meeting.

Goal 1 – Initiative 2-2 Update

CA Energy Efficiency Strategic Plan

- The CPUC Potential Study Model can conduct scenario analysis at a high level to assess the impacts of broad reaching energy policies.
- Impacts of new initiatives and programs specific to lighting end use technologies is best modeled at a high level in a separate spreadsheet model.

	GWh										
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Baseline Energy Use	47,886	48,315	48,969	49,462	49,913	50,380	50,874	51,284	51,676	52,070	52,450
Savings from Lighting C&S	-	369	1,291	2,898	4,252	5,325	6,854	8,629	10,148	11,245	12,195
Savings from IOU programs	-	1,558	2,916	4,083	5,389	6,722	7,755	8,815	9,003	9,098	9,414
Additional Savings 1						1,000	1,500	2,000	2,500	3,000	3,500
Additional Savings 2						500	1,500	2,500	3,500	4,500	5,500
Additional savings 3						100	200	300	400	500	600
Remaining Lighting Energy Use	47,886	46,388	44,762	42,480	40,271	36,733	33,066	29,040	26,125	23,727	21,240

Goal 1 – Initiative 2-2 Update

CA Energy Efficiency Strategic Plan

- A spreadsheet analysis can use the following methods:
  - Change code compliance levels to scale up or down Savings from Lighting C&S
  - Scale Savings from IOU Program up based on increased rebates or decreased LED costs
  - Add layers of additional savings from lighting control technologies or other technologies not explicitly modeled in the CPUC Potential Study
  - Leverage results from other lighting savings potential calculation models
- We are aware other studies are underway to look at scenarios for future lighting savings across various sectors.

CA | Energy Efficiency Strategic Plan

LAP UPDATES
Goal 2
Strategy 3

Goal 2

CA Energy Efficiency Strategic Plan

- **Goal 2** – BEST PRACTICES

  Define and advance best practices for design, installation, operation and maintenance of integrated systems to achieve sustainable lighting solutions for all spaces.

Goal 2

- Strategy 3: Identify best practice lighting technologies and systems and incorporate into utility programs.
  - Champions:
    - Adam Parrish, Crossroad Services Inc. on behalf of TCP
    - Alex Alzugaray, Energy Solutions
    - Jennifer Burns, Philips Lighting Company
    - Kandice Cohen, OSRAM SYLVANIA
    - Lela Manning, Sempra Energy Utilities
    - Robert Hick, Leviton Controls
    - Vireak Ly, Southern California Edison

Goal 2

CA Energy Efficiency Strategic Plan

- Strategy 3: Identify best practice lighting technologies and systems and incorporate into utility programs.

Initiative	Key Actions	Timeline
3-1: Identify and publicize current list of best practice lighting technologies and systems	Convene a diverse group of stakeholders to review current set of best practice lighting technologies and systems	COMPLETE
	Summarize the current set of best practice lighting technologies and systems in a brief, easily-understood document	Q2 2014
	Solicit stakeholder feedback on the draft set of best practice lighting technologies and systems and finalize document	Q2 2014
	Publish best practices document and update periodically	Ongoing
3-2: Provide a straw proposal to CPUC Energy Division for how to best incorporate advanced lighting efficiency measures (including lighting systems) into utility programs as part of an integrated demand side management approach	Convene group of utility program and technology experts to identify key barriers to technologies identified in Initiative 4-1	Q2 2014
	Document key barriers and options for overcoming barriers	Q2 2014
	Present draft results and obtain comment from a regional stakeholder group (e.g., Emerging Technologies Coordinating Council)	Q3 2014
	Finalize proposal and present to Energy Division staff	Q1 2015
3-3: Develop a straw proposal for the most accurate way to determine ex-ante savings estimates for advanced lighting controls systems; encourage implementation into IOU program analysis	Develop short list of high-potential technologies and applications	Q2 2014
	Develop a list of necessary DEER inputs for these technologies	Q2 2014
	Outline an approach to quantifying the necessary DEER inputs	Q3 2014
	Present draft results and obtain stakeholder comments	Q4 2014
	Finalize proposal and present to Energy Division staff and other relevant stakeholders	Q1 2015
3-4: Develop pilot programs that support best practices and encourage lighting market transformation	Coordinate with the IOUs' Statewide Lighting Innovation Program team and RD&D advisory group (from Goal 4) to develop a list of technologies to include in pilot programs	Q2 2014
	With the same group, review and discuss possible program implementation strategies for pilot programs	Q2 2014
	Convene periodic meetings to refine and prioritize the technology/implementation strategy lists and obtain updates on pilot program activities	Ongoing
3-5: Prepare a white paper outlining the pros and cons of open-source and proprietary lighting communication protocols to inform discussions regarding the implications for IOU programs	Create an outline of the white paper and agree upon the elements that should be included	Q1 2014
	Review outline and make assignments	Q1 2014
	According to outline, document the pros and cons associated with open-source and proprietary lighting communication protocols	Q2 2014
	Present draft results and obtain stakeholder comments	Q2 2014
	Finalize results and present to Energy Division staff and other relevant stakeholders	Q3 2014

Goal 2

CA Energy Efficiency Strategic Plan

- Strategy 3: Identify best practice lighting technologies and systems and incorporate into utility programs.

Initiative	Key Actions	Timeline	COMPLETE?
3-5: Prepare a white paper outlining the pros and cons of open-source and proprietary lighting communication protocols to inform discussions regarding the implications for IOU programs	Create an outline of the white paper and agree upon the elements that should be included	Q1 2014	YES
	Review outline and make assignments	Q1 2014	No

Goal 2

- Strategy 3: Identify best practice lighting technologies and systems and incorporate into utility programs.
  - Initiative 3-5: Prepare a white paper outlining the pros and cons of open-source and proprietary lighting communication protocols to inform discussions regarding the implications for IOU programs
  - **Key Action: Create an outline of the white paper and agree upon the elements that should be included**
  - Status: Completed
  - Brief Update:
    - Robert Hick from Leviton will now present the outline of the pros and cons of open-source and proprietary lighting communication.

Goal 2

Open-source and Proprietary Lighting Control Protocols

- Overview and Purpose

- Details of widely used open lighting protocols
  - DALI
    - Details and History
    - Applications
    - Advantages and Limitations
      - Installation
      - Commissioning
      - Scalability
      - Effects on energy consumption

Goal 2

(same format for other protocols)

- Phase-cut Dimming
- DMX512
- 0-10V
- EnOcean wireless
- Zigbee wireless
- BACnet
- Lonworks
- KNX
- DLT (IEC62756)

Goal 2

- Proprietary lighting protocols in North America

  (each manufacturer to supply summary)

  - Lutron
  - Leviton
  - WattStopper
  - (Add other manufacturers)

Goal 2

- Retrofit application
  - Wireless
    - RF,
    - PLC (Power Line Communications)
  - Wired
    - New wiring
    - Existing wiring
  - Ethernet – using existing communications infrastructure

- BAS integration
  - Use cases
  - Best practice

- Energy savings potentials

Goal 2

- Strategy 3: Identify best practice lighting technologies and systems and incorporate into utility programs.
  - Initiative 3-5: Prepare a white paper outlining the pros and cons of open-source and proprietary lighting communication protocols to inform discussions regarding the implications for IOU programs
  - **Key Action: Review outline and make assignments**
  - Status: Will be completed by 4/4
  - Brief Update:
    - The team will receive by 3/27 and will return feedback by 4/4, at which point we will schedule a call to discuss.

CA | Energy Efficiency Strategic Plan

LAP UPDATES
Goal 2
Strategy 4

Goal 2

CA Energy Efficiency Strategic Plan

- **Goal 2** – BEST PRACTICES

  Define and advance best practices for design, installation, operation and maintenance of integrated systems to achieve sustainable lighting solutions for all spaces.

Goal 2

- Strategy 4: Educate and train lighting contractors and other professionals to properly design, install and maintain advanced lighting systems.
  - Champions:
    - Mark Ouellette, ICF International
    - Vireak Ly, Southern California Edison

Goal 2

- Strategy 4: Educate and train lighting contractors and other professionals to properly design, install and maintain advanced lighting systems.
  - No Key Actions due during Q1 2014

Initiative	Key Actions	Timeline
4-1: Identify gaps in current training offerings and barriers to participation and encourage development of training to address these shortcomings.	Create a matrix of current training activities showing their sponsors, target audiences, locations, objectives, and content	COMPLETE
	Examine matrix to identify gaps in availability of training for specific audiences, individuals in specific geographic areas, and specific training topics or content	Q2 2014
	Compile a list of current and past EM&V studies and other relevant materials that shed light on training barriers	Q2 2014
	Review and summarize materials regarding gaps and barriers	Q3 2014
	Share results with relevant stakeholders (such as representatives from ED, California utilities, and training organizations) and discuss possible changes to existing training (or new training) to fill gaps and address barriers	Q4 2014

CA | Energy Efficiency Strategic Plan

LAP UPDATES
Goal 2
Strategy 5

Goal 2

- **Goal 2** – BEST PRACTICES

  Define and advance best practices for design, installation, operation and maintenance of integrated systems to achieve sustainable lighting solutions for all spaces.

Goal 2

CA Energy Efficiency Strategic Plan

- Strategy 5: Explore ways to increase the participation of public entities (including cities and municipalities) in current IOU programs that offer incentives and financing for lighting measures.
  - Champions:
    - Jennifer Lawrence, Cree
    - Jeorge Tagnipes, CPUC
    - TBD IOU Local Government Partnership Program Representative

Goal 2

- Strategy 5: Explore ways to increase the participation of public entities (including cities and municipalities) in current IOU programs that offer incentives and financing for lighting measures.
  - No Key actions due during Q1 2014

Initiative	Key Actions	Timeline
5-1: Conduct information-sharing meetings with relevant representatives of public agencies, ED, utilities, and other stakeholders to ensure awareness of and access to utility programs	Research decision-making responsibilities of individuals responsible for renovation decisions at public agencies and generate a list of those individuals	COMPLETE
	Convene a meeting (or series of meetings) involving these individuals, utility and ED representatives, and other stakeholders to share information about existing programs, barriers to participation in those programs, and possible ways to overcome those barriers	Q2 2014
	Conduct ongoing outreach and follow-up to support (to the extent possible) increased participation of public agencies in utility lighting programs	2014

CA | Energy Efficiency Strategic Plan

LAP UPDATES
Goal 3
Strategy 6

Goal 3

- **Goal 3 –** END-USER DEMAND

  Create widespread end user demand to purchase and use best practice lighting technologies and systems.

Goal 3

CA Energy Efficiency Strategic Plan

- Strategy 6: Relying on input from a diverse group of stakeholders (including the CPUC, other government agencies, utilities, and industry), determine the most effective messaging for different end-user groups; and develop a coordinated marketing approach to educate end users and encourage adoption of best practice lighting technologies and systems.
  - Champions:
    - Juan Carlos Blacker, Independent Consultant
    - Caroline Chen, Southern California Edison
    - Alice Liddell, ICF International
    - Christopher Lubeck, OSRAM SYLVANIA
    - Andrea Nylund, Eco Hatchery
    - Doreen Caruth, PG&E
    - Brian Smith, PG&E
    - Glen Whitehead, Cree

Goal 3

- Strategy 6: Relying on input from a diverse group of stakeholders (including the CPUC, other government agencies, utilities, and industry), determine the most effective messaging for different end-user groups; and develop a coordinated marketing approach to educate end users and encourage adoption of best practice lighting technologies and systems.

Initiative	Key Actions	Timeline
6-1: Institute a statewide study to assess end-user wants, needs, and desirability of currently-installed lighting technologies; publicize results to help tailor product marketing and messaging	Review and synthesize results of completed residential and non-residential studies to identify and document end-user wants and needs	COMPLETE
	Present results in a digestible form to Lighting Action Plan champions, the IOU Lighting Market Transformation Program team, and other stakeholder groups to support development of targeted messaging to address end-user wants and needs	COMPLETE
6-2: Create and publicize an inventory of financing options for best practice lighting technologies and systems	Investigate and catalogue financing options (including utility resources and others)	COMPLETE
	Review available literature on customer demand for financing and loan packages for energy-efficient upgrades (lighting-specific, if possible)	COMPLETE
	Prepare a brief white paper summarizing demand for and availability of financing options	Q1 2014
	Work with ED staff and broader stakeholder group to determine possible venues in which to share white paper results with a broader audience	2014
6-3: Create and distribute the most effective messaging through a coordinated marketing approach to educate end users and encourage adoption of best practice lighting technologies and systems	Determine best message for each user group	Q1 2014
	Determine best partners and outlets for a coordinating marketing approach and engage them into Lighting Action Plan	2014
	With partners, develop marketing and education platform to encourage adoption of best practice lighting technologies and systems.	2014

Goal 3

- Strategy 6: Relying on input from a diverse group of stakeholders (including the CPUC, other government agencies, utilities, and industry), determine the most effective messaging for different end-user groups; and develop a coordinated marketing approach to educate end users and encourage adoption of best practice lighting technologies and systems.

Initiative	Key Actions	Timeline	Complete?
6-2: Create and publicize an inventory of financing options for best practice lighting technologies and systems.	Prepare a brief white paper summarizing demand for and availability of financing options	Q1 2014	NO
6-3: Create and distribute the most effective messaging through a coordinated marketing approach to educate end users and encourage adoption of best practice lighting technologies and systems.	Determine best message for each user group	Q1 2014	NO

Goal 3

- Strategy 6: Relying on input from a diverse group of stakeholders (including the CPUC, other government agencies, utilities, and industry), determine the most effective messaging for different end-user groups; and develop a coordinated marketing approach to educate end users and encourage adoption of best practice lighting technologies and systems.
  - Initiative 6-2: Create and publicize an inventory of financing options for best practice lighting technologies and systems
  - **Key Action: Prepare a brief white paper summarizing demand for and availability of financing options**
  - Status: Not Complete
  - Brief Update:

Goal 3

– Brief Update:

- Part-I: Whitepaper by Advanced Energy Economy (aee.net), an association of businesses
  - Published in February 2014 and entitled *Overview of California's Energy Finance Programs*.
  - Provides a concise summary of programs specifically focused on finance of energy-related measures.
- Part-II: California Financing Option Research by the Cadmus Group (Status: Q2/2014)
  - Objective is to summarize the demand for, and the availability of, financing options for lighting-based energy efficiency programs.
  - The expected delivery date for this white paper is mid-June 2014.

Goal 3

CA Energy Efficiency Strategic Plan

- Strategy 6: Relying on input from a diverse group of stakeholders (including the CPUC, other government agencies, utilities, and industry), determine the most effective messaging for different end-user groups; and develop a coordinated marketing approach to educate end users and encourage adoption of best practice lighting technologies and systems.
  - Initiative 6-3: Create and distribute the most effective messaging through a coordinated marketing approach to educate end users and encourage adoption of best practice lighting technologies and systems.
  - **Key Action: Determine best message for each user group**
  - Status: Not Complete
  - Brief Update:
    - The IOUs currently address 5 different lighting customer sectors: Residential, Commercial, Industrial, Agriculture, and Outdoor Lighting.
    - We are focusing this initiative on the residential sector in 2014.
    - We also propose to link 6-3 milestone to the IOU's Pipeline Plan which is designed to coordinate implementation strategies for all five customer sectors.

CA | Energy Efficiency Strategic Plan

LAP UPDATES
Goal 4
Strategy 7

Goal 4

- **Goal 4 –** Research, Development, & Demonstration

  Develop research, development and demonstration (RD&D) networks to create, test and deliver the lighting solutions needed to transform California's lighting market and achieve ZNE goals.

Goal 4

- Strategy 7: Develop a unified vision to guide statewide lighting RD&D efforts
  - Champions:
    - Chris Corcoran, Pacific Gas & Electric
    - Dustin Davis, California Energy Commission
    - Brian Fortenbery, Electric Power Research Institute
    - Jennifer Burns, Philips Lighting Company
    - Jennifer Lawrence, Cree
    - Konstantinos Papamichael, California Lighting Technology Center
    - Michael Mutmansky, TRC
    - Abhijeet Pande, TRC
    - Frank Sharp, Electric Power Research Institute
    - Katherine Burggraf, California Lighting Technology Center

Goal 4

- Strategy 7: Develop a unified vision to guide statewide lighting RD&D efforts

Initiative	Key Actions	Timeline
7-1: Develop an RD&D roadmap and support structure	Convene a diverse group of stakeholders (including representatives from the CPUC, other government agencies, utilities, and industry) to form an RD&D advisory body and identify necessary elements of the roadmap	COMPLETE
	Identify PIER and EPIC lighting projects and align their research goals with the goals of the Lighting Action Plan	COMPLETE
	Establish ~~and agree upon metrics to measure within the roadmap and establish~~ a timeline for roadmap implementation based on PIER projects	Q1 2014
	Review, finalize, publish, and promote the roadmap	Q1 2014
	Continue collaboration with CEC and other agencies to ensure that RD&D funding opportunities (e.g., EPIC) align with the goals of the Lighting Action Plan	Ongoing
	Hold periodic stakeholder meetings to share RD&D roadmap progress and results	Ongoing
7-2: Develop demonstration projects for advanced lighting systems in a range of space types	Identify the proper "range of space types" and contextual characteristics for the demonstrations	Q1 2014
	Coordinate with PIER/EPIC, utility emerging technologies programs, and other stakeholders to develop guidelines for demonstration projects	Q2 2014
	Identify funding sources for demonstration programs	Q2 2014
	Develop demonstration project proposals	Q3 2014
	Implement and evaluate demonstration projects; share results with stakeholders	2015

Goal 4

- Strategy 7: Develop a unified vision to guide statewide lighting RD&D efforts

Initiative	Key Actions	Timeline	Completed?
7-1: Develop an RD&D roadmap and support structure	Establish ~~and agree upon metrics to measure within the roadmap and establish~~ a timeline for roadmap implementation based on PIER projects	Q1 2014	YES
	Review, finalize, publish, and promote the roadmap	Q1 2014	NO
7-2: Develop demonstration projects for advanced lighting systems in a range of space types	Identify the proper "range of space types" and contextual characteristics for the demonstrations	Q1 2014	YES

Goal 4

- Strategy 7: Develop a unified vision to guide statewide lighting RD&D efforts.
  - Initiative 7-1: Develop an RD&D roadmap and support structure
  - **Key Action: Establish ~~and agree upon metrics to measure within the roadmap and establish~~ a timeline for roadmap implementation based on PIER projects**
  - Status: Completed
  - Brief Update:
    - Roadmap draft currently established
      - Tracks completion timeline for past, current, and future projects
      - Tracks research strategies investigated by each project
    - PIER and CEC projects incorporated into current roadmap
      - No other project information received from champions
      - Can incorporate additional projects into map as received

Goal 4

CA Energy Efficiency Strategic Plan

- Strategy 7: Develop a unified vision to guide statewide lighting RD&D efforts.
  - Initiative 7-1: Develop an RD&D roadmap and support structure
  - **Key Action: Review, finalize, publish, and promote the roadmap**
  - Status: Not Completed
  - Brief Update:
    - Roadmap draft created and distributed to champions
    - Roadmap to be reviewed by Goal 4 Champions
    - Draft can then be finalized, published, and promoted

Goal 4

- Strategy 7: Develop a unified vision to guide statewide lighting RD&D efforts.
  - Initiative 7-2: Develop demonstration projects for advanced lighting systems in a range of space types
  - **Key Action: Identify the proper "range of space types" and contextual characteristics for the demonstrations**
  - Status: Completed
  - Brief Update:
    - Case study database and schema distributed to and reviewed by Goal 4 Champions prior to November 7 meeting
    - Database tracks contextual characteristics and space types for demonstration projects
    - Demonstration guidelines based on this database currently being drafted

Adjourn

- **Next steps**
  - Teams will continue to work on their respective initiatives
  - If you would like to be involved with any of the champion teams please contact me (jeorge.tagnipes@cpuc.ca.gov)
  - Targeting next in person meeting in San Francisco in July